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END SEMESTER EXAMINATION, NOVEMBER-2018

Semester : 5th

Subject Code : FPT-501

**INTRODUCTION TO FOOD  
MICROBIOLOGY, BIOCHEMISTRY  
AND BIOTECHNOLOGY**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

**Instructions :**

1. All questions of PART – A are compulsory.
2. Answer any five questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks :

1×10=10

(a) Cell wall is thick in gram \_\_\_\_\_  
bacteria.

(b) \_\_\_\_\_ medium contains chemicals  
that deplete molecular oxygen.

[Turn over

- (c) Penicillin is produced by the fungus \_\_\_\_\_.
- (d) \_\_\_\_\_ bacteria is less susceptible to antibiotics.
- (e) Cells may increase in size in lag phase but simply don't undergo \_\_\_\_\_.
- (f) A \_\_\_\_\_ medium is produced only from well-defined, relatively pure ingredients.
- (g) Thermophilic bacteria grow best at a temperature above \_\_\_\_\_.
- (h) Coma shaped bacteria are commonly referred to as \_\_\_\_\_.
- (i) Agar solidifies below \_\_\_\_\_.
- (j) \_\_\_\_\_ medium is media lacking a solidifying matrix.
2. Write true or false :  $1 \times 10 = 10$
- (a) Enzymes are protein catalysts.
- (b) Yeasts belongs to a class of multicellular fungi.
- (c) Reducing medium is designed for the growth of more than one micro-organism.
- (d) Leeuwenhoek confirmed bacteria as agents of various diseases.

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- (e) Rod shaped bacteria are called spirillum.
- (f) Penicillin was the first commercial product produced by an aerobic, submerged fermentation.
- (g) The synthesis of all compounds' needed by the cell is catabolism.
- (h) The lower the temperature, the faster the reaction at the enzyme will occur.
- (i) Alcohol fermentation is allowed to continue at a temperature above  $45^{\circ}\text{C}$ .
- (j) The substance on which the enzyme act is called Holoenzyme.
3. Choose the correct answer :  $1 \times 5 = 5$
- (a) The part of the enzyme where the substrate binds is called the
- (i) Active site (ii) Catalyst
- (iii) Inhibitor (iv) Larger sub-unit
- (b) The solidifying agent commonly used in preparation of media is/are
- (i) Agar (ii) Silica gel
- (iii) Both (i) and (ii) (iv) None of these

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(c) Which of the following is not a product of fermentation ?

- (i) Lactate
- (ii) Oxygen
- (iii) CO<sub>2</sub>
- (iv) Ethanol

(d) Bacteria can be found in the shape of

- (i) Spherical
- (ii) Rods
- (iii) Spirals
- (iv) All of these

(e) What is the name for a metabolic process by which yeast converts sugar to ethanol ?

- (i) Flavoring
- (ii) Fermentation
- (iii) Hybridization
- (iv) None of these

#### PART - B

Marks - 45

4. (a) Draw and label the diagram of fermenter for penicillin production. 3

(b) Write the important characteristics of colony morphology. 4

(c) Define Inoculation. 2

5. (a) What is Prokaryote cell ? Draw and label the Ultra structure of a bacteria cell. 4

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(b) What is SCP ? What are the important criteria for selection of microbial strain in SCP production ? 3

(c) What is the role of yeast in fermentation process ? 2

6. (a) How enzymes can be precipitated and what is the advantage of precipitation ? 2

(b) Give important reasons why microbes cannot grow in stationary phase ? 2

(c) Discuss the different events those take place in the formation of pyruvic acid from glucose. 5

7. (a) Explain in brief the process of ethanol production from sugar. 4

(b) What is Enriched medium ? Give examples. 3

(c) Why do bacteria produce endospores ? 2

8. (a) What is streak plate ? What is the purpose of pure culture isolation ? 4

(b) What is micro-organism ? Give two examples. 3

(c) Give an important function of flagella. 2

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9. (a) Differentiate between Gram positive and Gram negative bacteria. 3
- (b) Explain the conjugation mode of reproduction in bacteria. 4
- (c) What is immobilized enzymes? Write its advantages. 2
10. (a) What is Co-factor? Explain the ES complex. 3
- (b) What is meant by Exponential growth phase? 2
- (c) Differentiate between selective and reducing medium. 4